I Claim:

1. A hardware authentication system for equipment including at least one removable hardware component comprising:

a processing unit within said equipment and including a first pseudo-random number generator responsive to at least one non-deterministic event for generating a pseudo-random number; and

a second pseudo-random number generator on said removable hardware component, said second pseudo-random number generator also being responsive to said at least one non-deterministic event and generating a pseudo-random number, said processing unit comparing the pseudo-random numbers generated by said first and second pseudo-random number generators to detect coincidence and thereby determine authenticity of said hardware component.

2. A hardware authentication system according to claim 1 wherein said pseudo-random number generators are responsive to non-deterministic and periodic events.

3. A hardware authentication system according to claim 2, wherein each of said pseudo-random number generators includes:

a counter incrementing its count value in response to non-deterministic events;

a register rotating its contents in response to periodic events; and

logic coupling the counter and the register, said logic receiving the count value output by said counter and modifying said register contents using the value of said counter, the value held by said register constituting said pseudo-random number.

4. A hardware authentication system according to claim 3 wherein said logic performs an XOR operation on the register value using the value of said counter.

5. A hardware authentication system according to claim 4 wherein the XOR operation is performed on each bit of the register value.

6. A hardware authentication system according to claim 4 wherein the XOR operation is performed on selected bits of the register value.

7. A hardware authentication system according to claim 3 wherein said first pseudo-random number generator is realized by software executed by said processing unit and wherein said second pseudo-random number generator is realized in a single physical device within said removable hardware component.

8. A hardware authentication system according to claim 7 wherein said single physical device is an ASIC or a programmable logic device.

9. A hardware authentication system according to claim 3 wherein said processing unit compares the pseudo-random numbers at periodic intervals.

10. A hardware authentication system according to claim 9 wherein said processing unit compares the pseudo-random numbers following each periodic event.

11. A hardware authentication system according to claim 1 wherein said equipment is a private branch exchange and wherein said removable hardware component is a line card.

12. A hardware authentication system according to claim 11 wherein said at least one non-deterministic event is a busy state of a circuit of said line card resulting due to an off-hook condition of a telephone set connected to said circuit.

13. A method of authenticating a removable hardware component installed in equipment, said method comprising the steps of:

providing a first pseudo-random number generator on said equipment that is responsive to at least one non-deterministic event for generating a pseudo-random number;

providing a second pseudo-random number generator in said hardware component that is also responsive to said at least one non-deterministic event for generating a pseudo-random number;

comparing the pseudo-random numbers generated by the first and second pseudo-random number generators at intervals to detect coincidence and thereby determine authenticity of said hardware component.

14. The method of claim 13 wherein generation of each pseudo-random number includes the steps of:

incrementing a count value in response to non-deterministic events;

rotating a register value constituting the pseudo-random number in response to periodic events; and

modifying the register value using the count value prior to rotation of the register value.

15. The method of claim 14 wherein the modifying step includes the step of XORing the register value using the count value.